

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
17 June 2004 (17.06.2004)

PCT

(10) International Publication Number  
**WO 2004/050799 A1**

(51) International Patent Classification<sup>7</sup>: **C10G 2/00**,  
C07C 1/04, B01J 19/24

(21) International Application Number:  
PCT/GB2003/005198

(22) International Filing Date:  
27 November 2003 (27.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
PCT/GB02/005443  
2 December 2002 (02.12.2002) GB  
0314790.7 25 June 2003 (25.06.2003) GB

(71) Applicant (for all designated States except US): **GTL MICROSYSTEMS AG** [CH/CH]; Rigmstrasse 184, CH-6340 Baar (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BOWE, Michael**,

Joseph [GB/GB]: 17 Balmoral Road, New Longton, Preston, Lancashire PR4 4JJ (GB). **LEE-TUFFNELL, Clive**, Derek [GB/GB]: 40 Martin Close, Poole, Dorset BH17 7XS (GB).

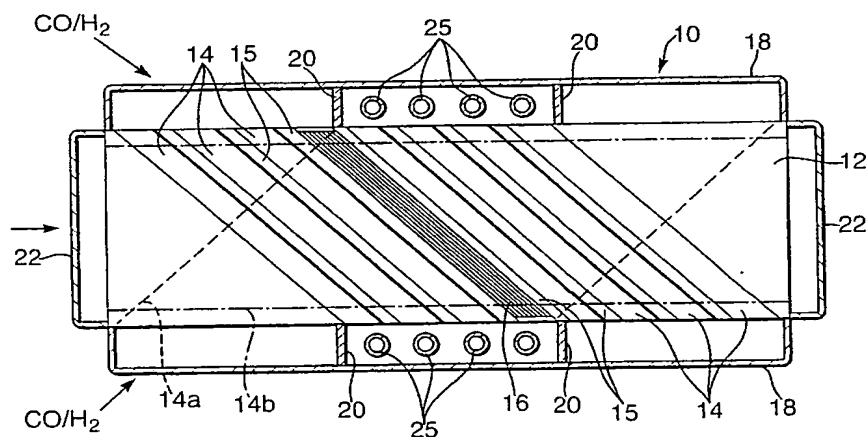
(74) Agents: **MANSFIELD, Peter**, Turquand et al.; c/o Accentus plc, Patents Dept, 329 Harwell, Didcot, Oxfordshire OX11 0QJ (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: **CATALYTIC REACTOR AND PROCESS**



(57) **Abstract:** Fischer-Tropsch synthesis is performed using a compact catalytic reactor unit (10) defining channels in which is a gas-permeable catalyst structure (16), the channels extending between headers (18). The synthesis occurs in at least two stages, as the reactor unit provides at least two successive channels (14, 14a) for the Fischer-Tropsch synthesis connected by a header, the gas flow velocity through the first channel being sufficiently high that no more than 65% of the carbon monoxide undergoes conversion. The gases are cooled (25) in the header between the two stages, so as to condense water vapour, and then pass through the second channel at a sufficiently high gas flow velocity that no more than 65% of the remaining carbon monoxide undergoes conversion. This lowers the partial pressure of water vapour and so suppresses oxidation of the catalyst.